



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/654,263	09/01/2000	Manabu Hyodo	0879-0271P	5719
2292	7590	01/27/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			YODER III, CRISS S	
PO BOX 747			ART UNIT	PAPER NUMBER
FALLS CHURCH, VA 22040-0747			2612	

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/654,263	HYODO ET AL.
Examiner	Art Unit	
Chriss S. Yoder, III	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 22 September 2004.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-31 is/are pending in the application.
4a) Of the above claim(s) 19-30 is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 1-18 and 31 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 01 September 2000 is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/29/2000

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election of 1-18 and 31 in the reply filed on September 22, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2, 4-9, 13-14, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al. (US Patent # 5,991,456) in view of Sato (US Patent # 6,650,365).
2. In regard to claim 1, note Rahman discloses the use of the use of an imaging device which images a subject so as to acquire image data with an imaging luminance range wider than a reproducing luminance range on at least one of displaying and printing (column 1, lines 31-43; and column 7, lines 9-17). Therefore, it can be seen that the Rahman device lacks the use of a recording device which converts the image data acquired by the imaging device with a predetermined function and records the converted image data and information on the predetermined function. Sato discloses the use of a recording device which converts the image data acquired by the imaging

device with a predetermined function and records the converted image data and information on the predetermined function (column 3, lines 23-41; and figure 2). Sato teaches that the use of a recording device which converts the image data acquired by the imaging device with a predetermined function and records the converted image data and information on the predetermined function is preferred in order to provide an image signal that can be subjected to optimum image correction processes using an arbitrary output device (column 1, lines 33-36). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Rahman device to include the use of a recording device which converts the image data acquired by the imaging device with a predetermined function and records the converted image data and information on the predetermined function as suggested by Sato.

3. In regard to claim 2, note Rahman discloses that the imaging luminance range is at least two and at most six times as wide as the reproducing luminance range (column 1, lines 40-43, and column 7, lines 10-15; for example if the imaging luminance range is 10 bit/color channel it is four times as wide as the 8 bit/color channel output device because 10 bits would allow a range of 0-1023 and 8 bits would only allow a range of 0-255).

4. In regard to claim 4, note Sato discloses the use of an imaging device with a recording device that records the coefficient of a function that performs correction (figure 2; i.e. the correction coefficient for gamma correction). Therefore, it can be seen that the primary reference fails to disclose the use of a recording device uses a linear function to represent the relation between the image data and a digital value to be

recorded. Official Notice is taken that the concepts and advantages of using a linear function to represent the relation between the image data and a digital value to be recorded is notoriously well known and expected in the art (the gamma correction coefficient that is stored in Sato is considered to be the equivalent of the first-order coefficient of the function). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of a linear function to represent the relation between the image data and the data to be recorded in order to output the desired corrected image signals.

5. In regard to claim 5, note Sato discloses that the recording device records the coefficient as attached information for the image data in the same image file as the image data (column 3, lines 54-65; and figure 2).

6. In regard to claim 6, note Sato discloses that the recording device records the image file in one of a directory and a holder provided for each form of conversion (column 3, lines 54-65; and figure 2; each function has a holder that stores the value for its function).

7. In regard to claim 7, note Sato discloses the use of an imaging device with a recording device that records the coefficient of a function that performs correction (figure 2; i.e. the correction coefficient for gamma correction). Therefore, it can be seen that the primary reference fails to disclose the use of a recording device uses a logarithmic function to represent the relation between the image data and a digital value to be recorded. Official Notice is taken that the concepts and advantages of using a logarithmic function to represent the relation between the image data and a digital value

to be recorded is notoriously well known and expected in the art (the gamma correction coefficient that is stored in Sato is considered to be the equivalent of the first-order coefficient of the function). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of a logarithmic function to represent the relation between the image data and the data to be recorded in order to output the desired corrected image signals.

8. In regard to claim 8, note Sato discloses that the recording device records the coefficient as attached information for the image data in the same image file as the image data (column 3, lines 54-65; and figure 2).

9. In regard to claim 9, note Sato discloses that the recording device records the image file in one of a directory and a holder provided for each form of conversion (column 3, lines 54-65; and figure 2; each function has a holder that stores the value for its function).

10. In regard to claim 13, note Rahman discloses the use of a CCD that captures the image and converts the output voltage values into digital values and records the digital values (column , lines). Therefore, it can be seen that the Rahman device lacks the use of a filter arrangement of R, G, B and G. Official Notice is taken that the concepts and advantages of using a filter arrangement of R, G, B and G is notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Rahman device to include the use of a filter arrangement of R, G, B and G in order to capture a color image.

11. In regard to claim 14, note Sato discloses that the recording device records the image file in one of a directory and a holder provided for each form of conversion (column 3, lines 54-65; and figure 2).

12. In regard to claim 31, note Rahman discloses an imaging device which images a subject so as to acquire imaged data with a recording luminance range wider than a reproducing luminance range on at least one of displaying and printing (column 1, lines 31-43; and column 7, lines 9-17; the image is converted from the wide range of 10-12 bits down to the reproducing range of 8 bits), a recording device which converts the imaged data acquired by the imaging device with a predetermined function into a first image data (column 1, lines 31-43; and column 7, lines 9-17). Therefore, it can be seen that the Rahman device fails to disclose that the recording of the first image data and luminance range information relating at least the predetermined function, a reading device which reads the first image data with the recording luminance range and reads the luminance range information, a signal processing device which produces, from the first image data with the recording luminance range, second image data with a luminance range required on the reproducing according to the luminance range information, and a reproducing device comprising either a display or printer that outputs the reproduced image. Sato discloses the recording of the first image data and luminance range information relating at least the predetermined function (column 3, lines 55-60; and figure 2), a reading device which reads the first image data with the recording luminance range and reads the luminance range information (column 4, lines 40-47), a signal processing device which produces, from the first image data with the

recording luminance range, second image data with a luminance range required on the reproducing according to the luminance range information (column 4, lines 40-47), and a reproducing device comprising either a display or printer that outputs the reproduced image (figure 1: 36). Sato teaches that the use of a recording device which converts the image data acquired by the imaging device with a predetermined function and records the converted image data and information on the predetermined function is preferred in order to provide an image signal that can be subjected to optimum image correction processes using an arbitrary output device (column 1, lines 33-36). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Rahman device to include the use of a recording device which converts the image data acquired by the imaging device with a predetermined function and records the converted image data and information on the predetermined function as suggested by Sato.

13. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al. (US Patent # 5,991,456) in view of Sato (US Patent # 6,650,365) and in further view of Tsai (US Patent # 5,309,243).

14. In regard to claim 3, note the primary reference of Rahman in view of Sato discloses an imaging device which images a subject so as to acquire image data with an imaging luminance range wider than a reproducing luminance range as claimed in claim 1 above. Therefore, it can be seen that the primary reference of Rahman in view of Sato fails to disclose a lower than normal exposure value than a normal exposure value for desired reproducing. Tsai discloses the use of an imaging device that images a subject with lower than normal exposure values (column 2, lines 30-36). Tsai teaches

that the adjustment of the image exposure values is preferred in order to compensate the image for better quality. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to image the subject with a lower than normal exposure value as suggested by Tsai.

15. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al. (US Patent # 5,991,456) in view of Sato (US Patent # 6,650,365) and in further view of Kim (US Patent # 5,710,594).

16. In regard to claim 10, note the primary reference of Rahman in view of Sato discloses an imaging device which images a subject so as to acquire image data with an imaging luminance range wider than a reproducing luminance range as claimed in claim 1 above, and Sato discloses the storage of a coefficient that represents the relationship between the image data and the data to be stored (figure 2; i.e. the correction coefficient for gamma correction). Therefore, it can be seen that the primary reference of Rahman in view of Sato fails to disclose the use of a recording device that represents a relationship between the image data and a digital value to be recorded while dividing the relationship into an area where the relationship is represented by a logarithmic function and an area where the relationship is represented by a linear function, and records a coefficient of the logarithmic function and a coefficient of the linear function with the image data. Kim discloses the use of a linear and a logarithmic function for gamma correction that are used simultaneously to correct the image (figure 1: 14 and 16; the gamma correction coefficient that is stored in Sato is considered to be the equivalent of the first-order coefficient, therefore, for the Sato device to recall the

function information of the Kim device, one coefficient for each of the linear and logarithmic functions are stored). Kim teaches that the use of both linear and logarithmic functions is preferred in order to optimally correct the image data. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of a linear and a logarithmic function to represent the relation between the image data and the data to be recorded as suggested by Kim.

17. In regard to claim 11, note Sato discloses that the recording device records the coefficients as attached information for the image data in the same image file as the image data (column 3, lines 54-65; and figure 2).
18. In regard to claim 12, note Sato discloses that the recording device records the image file in one of a directory and a holder provided for each form of conversion (column 3, lines 54-65; and figure 2; each function has a holder that stores the value for its function).
19. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al. (US Patent # 5,991,456) in view of Sato (US Patent # 6,650,365) and in further view of Lyon et al. (US Patent # 6,512,858).
20. In regard to claim 15, note the primary reference of Rahman in view of Sato discloses an imaging device which images a subject so as to acquire image data with an imaging luminance range wider than a reproducing luminance range as claimed in claim 1 above. Therefore, it can be seen that the primary reference of Rahman in view of Sato fails to disclose a mode switching device which switches between a normal imaging mode and a wide luminance range imaging mode. Lyon discloses the use of a

mode selecting device that switches between different modes (column 3, lines 34-41).

Lyon teaches that the use of a mode selecting device is preferred in order to allow the user to select the mode that they desire (column 3, lines 34-41). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of a mode selector as suggested by Lyon.

21. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al. (US Patent # 5,991,456) in view of Sato (US Patent # 6,650,365) and in further view of Lyon et al. (US Patent # 6,512,858) and further in view of Tsai (US Patent # 5,309,243).

22. In regard to claim 16, note the primary reference of Rahman in view of Sato and Lyon discloses the use of an imaging device which images a subject so as to acquire image data with an imaging luminance range wider than a reproducing luminance range as claimed in claim 15 above. Therefore, it can be seen that the primary reference of Rahman in view of Sato and Lyon fails to disclose that the subject is imaged with a normal exposure value obtained from normal photometry in the normal imaging mode, and that the subject is imaged with an exposure value lower than the normal exposure value, the exposure value being calculated according to the normal exposure value obtained by the normal photometry. Tsai discloses that the subject is imaged with a normal exposure value obtained from normal photometry in the normal imaging mode (column 2, lines 30-36), and that the subject is imaged with an exposure value lower than the normal exposure value (column 2, lines 30-36), the exposure value being calculated according to the normal exposure value obtained by the normal photometry

(column 2, lines 30-36; if the image is overexposed, then the image exposure value is lowered according to the original exposure value). Tsai teaches that the adjustment of the image exposure values is preferred in order to compensate the image for better quality. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to image the subject with a normal exposure value obtained from normal photometry in the normal imaging mode, and adjust the imaged subject with an exposure value lower than the normal exposure value, the exposure value being calculated according to the normal exposure value obtained by the normal photometry as suggested by Tsai.

23. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al. (US Patent # 5,991,456) in view of Sato (US Patent # 6,650,365) and in further view of Nakagawa et al. (US Patent # 6,738,092).

24. In regard to claim 17, note the primary reference of Rahman in view of Sato discloses an imaging device which images a subject so as to acquire image data with an imaging luminance range wider than a reproducing luminance range as claimed in claim 1 above. Therefore, it can be seen that the primary reference of Rahman in view of Sato fails to disclose that the recording device records the image data with the same luminance range as the reproducing luminance range and records the image data with the imaging luminance range that is wider than the reproducing luminance range at one time. Nakagawa discloses the use of a recording device that stores two images of different quality at the same time (figure 5: original and thumbnail; this is the functional equivalent of the recording images of different luminance values). Nakagawa teaches

that the use of lower quality images (i.e. thumbnails) associated with higher quality images is preferred in order to increase transfer speeds between the camera and external devices. Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of a recording device that records high quality images as well as low quality images as suggested by Nakagawa.

25. In regard to claim 18, note Rahman discloses the use of an imaging device that images the subject with an exposure value of a case in which the subject is imaged with the imaging luminance range that is wider than the reproducing luminance range (column 6, lines 60-67; the image is exposed and picks up an image with a wider luminance range than the reproducing luminance) and the recording device converts the image data acquired by the imaging device with the exposure value so that the luminance range of the image data is the same as the reproducing luminance range (column 1, lines 31-43; and column 7, lines 9-17; the image is converted from the wide range of 10-12 bits down to the reproducing range of 8 bits).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US006762791B1: note the use of image processing based on attributes stored with the image.

US006650437B1: note the use of additional data stored with the image file.

US005337167A : note the use of image correction.

US006795212B1: note the use of a look up table for image correction.

US005621476A : note the use of linear gamma correction.

US006597468B1: note the use of recreating images using information stored with the image.

US005909244A : note the use of different quality images.

US006829301B1: note the use of different quality images.

US005047861: note the use of logarithmic image correction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chriss S. Yoder, III whose telephone number is (703) 305-0344 or (571) 272-7323. The examiner can normally be reached on M-F: 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CSY
January 21, 2005


TUAN HO
PRIMARY EXAMINER